

## **FINAL STATEMENT OF BASIS ADDENDA**

EPA Area Permit No. UT2736-00000

Petroglyph Operating Company, Inc.

**Antelope Creek Waterflood**  
Antelope Creek Field  
Duchesne County, Utah

Pursuant to Part III, Section B. 1. of the above-referenced Underground Injection Control (UIC) permit, Addenda to the Statement of Basis relative to the subject Area Permit Major Modifications are hereby established. The purpose of these addenda to the Statement of Basis is to address the changes incorporated in the **expanded Antelope Creek Waterflood**.

It is understood that the additional to-be-converted injection wells addressed in these Major Permit Modifications are subject to all requirements for newly constructed injection wells in the original Area Permit. Further, **the specific details addressed in the "original" Statement Of Basis are likewise applicable to the additional wells being permitted under these Major Modifications.**

The discussion of the Major Permit Modifications of the original versions of Title Change and Expanded Unit Area of PART I, of PART II, Sections A.1.(a); B; and C.1; and of corrections of nomenclature in PART II. Section D. and PART III. Sections A, and B are as follows:

**MODIFICATION #1 [Title of PART I]: AUTHORIZATION TO CONVERT/OR CONSTRUCT AND OPERATE (not Inject)**

Injection activities shall not commence until the operator has fulfilled all applicable conditions of this permit and has received **separate written authorization from the Director.**

### **PART I. MODIFICATION #2 [Expanded Area]:**

The expanded **Antelope Creek Waterflood** area (as modified) includes the conversion of initially **four (4)** existing oil production wells to Class II enhanced oil recovery injection wells located within the proposed Antelope Creek Waterflood, Duchesne County, Utah. Each of these proposed wells are located within the **expanded permitted area** which is defined as follows:

## FINAL STATEMENT OF BASIS ADDENDA

EPA Area Permit No. UT2736-00000

Petroglyph Operating Company, Inc.

**Antelope Creek Waterflood**  
Antelope Creek Field  
Duchesne County, Utah

List of <sup>Major</sup> Mods 1-7

Pursuant to Part III, Section B. 1. of the above-referenced Underground Injection Control (UIC) permit, Addenda to the Statement of Basis relative to the subject Area Permit Major Modifications are hereby established. The purpose of these addenda to the Statement of Basis is to address the changes incorporated in the **expanded Antelope Creek Waterflood**.

It is understood that the additional to-be-converted injection wells addressed in these Major Permit Modifications are subject to all requirements for newly constructed injection wells in the original Area Permit. Further, **the specific details addressed in the "original" Statement Of Basis are likewise applicable to the additional wells being permitted under these Major Modifications.**

The discussion of the Major Permit Modifications of the original versions of Title Change and Expanded Unit Area of PART I, of PART II, Sections A.1.(a); B; and C.1; and of corrections of nomenclature in PART II. Section D. and PART III. Sections A, and B are as follows:

**MODIFICATION #1 [Title of PART I]: AUTHORIZATION TO CONVERT/OR CONSTRUCT AND OPERATE (not Inject)**

Injection activities shall not commence until the operator has fulfilled all applicable conditions of this permit and has received **separate written authorization from the Director.**

**PART I. MODIFICATION #2 [Expanded Area]:**

The expanded Antelope Creek Waterflood area (as modified) includes the conversion of initially four (4) existing oil production wells to Class II enhanced oil recovery injection wells located within the proposed Antelope Creek Waterflood, Duchesne County, Utah. Each of these proposed wells are located within the **expanded permitted area** which is defined as follows:

Township 4 South, Range 3 West, Duchesne County, Utah

Section 20: NENE, SENE, NESE,  
 Section 21: All, Section 22: All, Section 25: E/2, NW,  
 S/2SW, NW/SW, Section 26: All, Section 27: All,  
 Section 28: All, Section 29: SENE, E/2SE, SWSE, SESW,  
 Section 31: W/2, NWNE, S/2SE, NESE, Section 32: E/2, SW,  
 S/2NW, NENW, Section 33: All, Section 34: All,  
 Section 35: All, Section 36: All

Township 4 South, Range 4 West, Duchesne County, Utah

Section 25: S/2, Section 36: All

Township 5 South, Range 4 West, Duchesne County, Utah

Section 1: All, Section 12: All, Section 36: All.

**MODIFICATION #3 [PART I] - (Original Permit version):**

Injection will be for the purpose of enhanced recovery of oil so that Petroglyph Operating Company, Inc. (Petroglyph) may economically produce oil from the Antelope Creek Field, in accordance with conditions set forth herein, and initially utilizing the following currently existing production wells:

<u>NAME</u>	<u>LOCATION</u>	<u>EPA PERMIT NO.</u>
Ute Tribal #33-14D3	SE/SW Section 33	UT2736-04420
Ute Tribal #33-10D3	NW/SE Section 33	UT2736-04421
Ute Tribal #33-08D3	SE/NE Section 33	UT2736-04422
Ute Tribal #33-16D3	SE/SE Section 33	UT2736-04423

are located within the total, newly defined permitted area:

Township 4 South, Range 3 West, Duchesne County, Utah

Section 20: NENE, SENE, NESE,  
 Section 21: All Section 22: All, Section 25: E/2, NW,  
 S/2SW, NWSW, Section 26: All, Section 27: All,  
 Section 28: All, Section 29: SENE, E/2SE, SWSE, SESW,  
 Section 31: W/2, NWNE, S/2SE, NESE, Section 32: E/2, SW,  
 S/2NW, NENW, Section 33: All, Section 34: All,  
 Section 35: All, Section 36: All

Township 4 South, Range 4 West, Duchesne County, Utah

Section 25: S/2,

Township 5 South, Range 3 West, Duchesne County, Utah

Sections 2, 3, 4, 5, Section 6: SE/4SE/4, Sections: 7, 8, 9, 10, 15, 16, 17, 18, 19, 20, 21, 28, 29, 30, 31, 32, and 33: All,

Township 5 South, Range 4 West, Duchesne County, Utah

Section 1: All, Section 12: All, Section 36: All.

**MODIFICATION #4 [New Well Corrective Action Requirements]:**

The additional thirty (30) wells; of which three (3) are T/A'd, nine (9) are P/A'd, fourteen (14) are producing oil wells, one (1) shut-in, one (1) water injection well, one (1) waiting on completion, and one (1) WDC well within the expanded Area Of Review (AOR) have been reviewed and were determined to have been satisfactorily constructed or plugged and abandoned to provide for protection of potential Underground Sources of Drinking Water (USDWs). Therefore, the operator is not required to take any corrective action on any of the additional thirty (30) wells within the expanded 1/4-mile area of review (AOR) covered by this Modified Area Permit.

**MODIFICATION #5 [Prior to Commencing Injection (Initial Wells)]**

**MODIFICATIONS #6 & #7 [Correction of Nomenclature in the Permit Parts II. D. and III. A. & B.]:**

There were several instances in the "original Area Permit in which injection activity was referred to and discussed as "underground disposal" and/or "disposal activity". These modifications are being made to correctly identify the injection activity as being for the purpose of enhanced recovery of oil.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500  
DENVER, COLORADO 80202-2466

## FINAL MAJOR AREA PERMIT MODIFICATIONS

EPA Area Permit No. UT2736-00000

Petroglyph Operating Company, Inc.

**Antelope Creek Waterflood**  
Antelope Creek Field  
Duchesne County, Utah

Pursuant to Part III, Section B. 1. of the above-referenced Underground Injection Control (UIC) permit, modifications to subject Area Permit are hereby being established. The purpose of these modifications, of the Permit PARTS I and II, is to **expand the Antelope Creek Waterflood Area to the West and North and, at the same time, change title and add a word.** Incidental permit modifications of PART III are being made for the purpose of **correcting nomenclature errors.**

Modifications of the original versions of **PART I**, of **Part II**, Sections A.1.(a); B; C.1; and E.2., and **correction of nomenclature in Part III** are as follows:

### MODIFICATION #1 [PART I] - (Original Permit version):

#### **PART I. AUTHORIZATION TO CONVERT/OR CONSTRUCT AND INJECT**

"Injection activities shall not commence until the operator has fulfilled all applicable conditions of this permit and has received written authorization from the Director."

**Is Modified to read:**

#### **PART I. AUTHORIZATION TO CONVERT/OR CONSTRUCT AND OPERATE**

### MODIFICATION #2 [PART I] - (Original Permit version):

"Pursuant to ... is hereby authorized, under this area permit, to convert four (4) existing oil production wells to Class II enhanced recovery injection wells located within the proposed Antelope Creek Field, Duchesne County, Utah. Each of these proposed wells are located within the permitted area which is defined as follows:"

Township 5 South, Range 3 West, Duchesne County, Utah  
Sections 2, 3, 4, 5, 6 (SE/4 of SE/4), 7, 8, 9, 10, 15, 16,  
17, 18, 19, 20, 21, 28, 30, 31, 32, and 33.



Printed on Recycled Paper

**Is Modified to read:**

"Pursuant to ... is hereby authorized, under this expanded area permit (as modified), to initially convert four (4) additional existing oil production wells to Class II enhanced recovery injection wells located within the Antelope Creek Field, Duchesne County, Utah. Each of these proposed wells are located within the new expansion of the now permitted area which is defined as follows:"

**Township 4 South, Range 3 West, Duchesne County, Utah**

Section 20: NE/NE, SE/NE, NE/SE,  
Section 21: All Section 22: All, Section 25: E/2, NW,  
S/2SW, NWSW, Section 26: All, Section 27: All,  
Section 28: All, Section 29: SENE, E/2SE, SWSE, SESW,  
Section 31: W/2, NWNE, S/2SE, NESE, Section 32: E/2, SW,  
S/2NW, NENW, Section 33: All, Section 34: All,  
Section 35: All, Section 36: All

**Township 4 South, Range 4 West, Duchesne County, Utah**

Section 25: S/2,

**Township 5 South, Range 3 West, Duchesne County, Utah**

Sections 2, 3, 4, 5, Section 6: SE/4SE/4, Sections: 7, 8, 9,  
10, 15, 16, 17, 18, 19, 20, 21, 28, 29, 30, 31, 32, and 33:  
All,

**Township 5 South, Range 4 West, Duchesne County, Utah**

Section 1: All, Section 12: All, Section 36: All.

**MODIFICATION #3 [PART I] - (Original Permit version):**

"Injection will be for the purpose of enhanced recovery ... and initially utilizing the following currently existing production wells located in T5S-R3W:"

<u>WELL NAME</u>	<u>LOCATION</u>	<u>EPA PERMIT NO.</u>
Ute Tribal #1-8	NW/4 of NW/4 Section 8	UT2736-04201
Ute Tribal #5-8	SE/4 of NW/4 Section 8	UT2736-04203
Ute Tribal #4-18	NW/4 of NE/4 Section 18	UT2736-04202
Ute Tribal #5-18	NE/4 of SE/4 Section 18	UT2736-04204

"Injection activities shall not commence until the operator has fulfilled all applicable conditions of this permit and has received written authorization from the Director."

**Is Modified to read:**

"Injection will be for the purpose of enhanced oil recovery ... and initially utilizing the following currently existing production wells located in T5S-R3W:"

<u>WELL NAME</u>	<u>LOCATION</u>	<u>EPA PERMIT NO.</u>
Ute Tribal #1-8	NW/4 of NW/4 Section 8	UT2736-04201
Ute Tribal #5-8	SE/4 of NW/4 Section 8	UT2736-04203
Ute Tribal #4-18	NW/4 of NE/4 Section 18	UT2736-04202
Ute Tribal #5-18	NE/4 of SE/4 Section 18	UT2736-04204

and the four (4) additional production wells located within the **expanded and newly defined permitted Area:**"

<u>WELL NAME</u>	<u>LOCATION</u>	<u>EPA PERMIT NO.</u>
Ute Tribal #33-14D3	SE/SW Section 33	UT2736-04420
Ute Tribal #33-10D3	NW/SE Section 33	UT2736-04421
Ute Tribal #33-08D3	SE/NE Section 33	UT2736-04422
Ute Tribal #33-16D3	SE/SE Section 33	UT2736-04423

"Injection activities shall not commence until the operator has fulfilled all applicable conditions of this permit and has received **separate written authorization from the Director.**"

Additional wells may be added as long as the permittee meets the provisions of the Area permit and according to the terms under CFR 40 § 144.33 (c).

**MODIFICATION #4 [PART II. B.] - (Original Permit version):**

"The operator is not required to take any corrective action on any of the forty-nine (49) production well or the five (5) plugged and abandoned wells within the area of review (AOR), before the effective date of the permit. The manner in which the wells are cased and cemented will prevent any migration of fluids from the injection zones into underground sources of drinking water (USDWs) in the Uinta Formation."

**Is Modified to read:**

"The operator is not required to take any corrective action on any of the original forty-nine (49) production wells or the five (5) plugged and abandoned (P&A'd) wells found within the AOR of the initial area permit.

"The operator is not required to take corrective action on any of the thirty (30) wells within the expanded 1/4-mile Area of Review (AOR) before the effective date of this Modified Area Permit; of the thirty (30) wells, three (3) are T/A'd, nine (9) are P/A'd, fourteen (14) are producing oil wells, one (1) shut-in oil well, one (1) EPA permitted Class II water injection well, one (1) waiting on completion, and one (1) WDC well. These wells have been reviewed and were determined to have been satisfactorily constructed or plugged and abandoned to prevent any migration of fluids from the injection zones into underground sources of drinking water (USDWs) in the Uinta Formation."

## **MODIFICATION #5 [PART II. C.1.] - (Original Permit version):**

### **"C. WELL OPERATION**

1. Prior to Commencing Injection (Initial Wells).  
Individual enhanced recovery operations for the four (4) existing production wells (Ute Tribal #1-8, #5-8, #4-18 and #5-18) may not commence until the permittee has compiled with both (a) and (b), as follows:"

**Is Modified to read:**

### **"C. WELL OPERATION**

1. Prior to Commencing Injection (Initial Wells).  
Individual enhanced recovery operations for the four (4) existing production wells, (Ute Tribal #1-8, #5-8, #4-18, and #5-18), and the four (4) additional production wells within the expanded and newly defined permitted Area, (Ute Tribal #33-14D3, #33-10D3, #33-08D3 and #33-16D3) may not commence until the permittee has compiled with both (a) and (b), as follows:"

## **MODIFICATION #6 [PART II. D.] - (Original Permit version):**

- "1. Injection well Monitoring Program. Samples and measurements shall be representative ...
  - (a) Analysis of the disposed fluids ..."
  - (ii) whenever there is a change in the source of disposed fluids ... "

**Is Modified to read:**

"1. Injection well Monitoring Program. Samples and measurements shall be representative ...

(a) Analysis of the **enhanced recovery injection** fluids ..."

(ii) whenever there is a change in the source of **enhanced recovery injection** fluids ..."

**MODIFICATION #7 [PART III. A. & B.] - (Original Permit version):**

**"A. EFFECT OF PERMIT**

The permittee is allowed to engage in underground disposal in accordance with the conditions of this permit. The permittee, as authorized by this permit, shall not construct, operate, maintain, convert, plug, abandon, or conduct any other disposal activity ... Any underground disposal activity not authorized ... "

**"B. PERMIT ACTIONS**

2. Conversions. The Director may, for cause or upon a request from the permittee, allow conversion of the well from a Class II salt water disposal well to a non-Class II well. Requests to convert the disposal well from its Class II status to a non-Class II well, such as a production well must be made in writing to the Director. ... "

**Is Modified to read:**

**"A. EFFECT OF PERMIT**

The permittee is allowed to engage in underground **enhanced recovery injection** in accordance with the conditions of this permit. The permittee, as authorized by this permit, shall not construct, operate, maintain, convert, plug, abandon, or conduct any other **injection** activity ... Any underground **injection** activity not authorized ... "

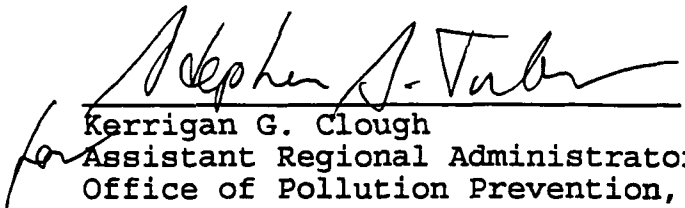
**"B. PERMIT ACTIONS**

2. Conversions. The Director may, for cause or upon a request from the permittee, allow conversion of the well from a Class II **enhanced recovery injection** well to a non-Class II well. Requests to convert

the injection well from its Class II status to a non-Class II well, such as a production well must be made in writing to the Director. ... "

*All other provisions and conditions of the permit remain as originally issued.*

4-30-98  
Date

  
Kerrigan G. Clough  
Assistant Regional Administrator  
Office of Pollution Prevention,  
State and Tribal Assistance

## **APPENDIX A**

### **I. WELL CONSTRUCTION SCHEMATICS**

**Ute Tribal #33-08D3-Wellbore Diagram  
After Conversion**

**Well History:**

11/23/97 Spud Well  
12/27/97 First Production

12/11/97 H02 Perfs, 6428 to 6432', 4 spf.  
Broke down with acid and treated water.  
Fraced with 300 bbls. x-linked gel water and  
28,300 lbs. total sand. ISIP 2684 psi.

12/11/97 E01 Perfs, 5826 to 5832', 4 spf.  
Broke down with acid and treated water.  
Fraced with 318 bbls. x-linked gel water and  
42,200 lbs. total sand. ISIP 2200 psi.

12/12/97 D7.2 Perfs, 5582 to 5610', 4 spf.  
Broke down with acid and treated water.  
Fraced with 810 bbl. x-linked gel water and  
170,700 lbs. total sand. ISIP 2817 psi, 5 min. 2813.

12/15/97 D3.4 Perfs, 5324 to 5354', 4 spf. also,  
D3.3 Perfs, 5311 to 5314', 4 spf.  
Broke down with acid and treated water.  
Fraced with 771 bbls. x-linked gel water and  
151,800 lbs. total sand. ISIP 2113 psi.

12/15/97 C6.1 Perfs, 501 to 5006', 4 spf.  
Broke down with acid and treated water.  
Fraced with 323 bbls. x-linked gel water and  
50,800 lbs. total sand. ISIP 1983' psi, 5 min 1888'.

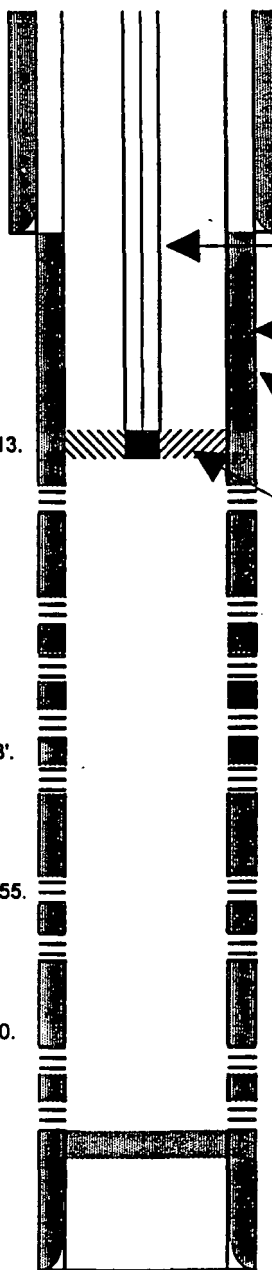
12/18/97 C5.2 Perfs, 4902 to 4906', 4 spf.  
Broke down with acid and treated water.  
Fraced with 245 bbls. x-linked gel water and  
310,000 lbs. total sand. ISIP 2450' psi, 5 min. 1955.

12/18/97 B10 Perfs, 4559 to 4563', 4 spf.  
Broke down with acid and treated water.  
Fraced with 297 bbls. x-linked gel water and  
43,000 lbs. total sand. ISIP 2659' psi, 5 min. 2560.

B8 Perfs, 4486 to 4496', 4 spf.  
Broke down with acid and treated water.  
Fraced with 3000 gal. x-linked gel water and  
13,000 lbs. total sand.

12/18/97 B6.3 Perfs, 4441 to 4445', 4 spf.  
Broke down with acid and treated water.  
Fraced with 244 bbls. x-linked gel water and  
27,000 lbs. total sand. ISIP 3418' psi, 5 min. 3100.

12/18/97 B6.2 Perfs, 4343 to 4347', 4 spf.  
Broke down with acid and treated water.  
Fraced with 217 bbls. x-linked gel water and  
27,600 lbs. total sand. ISIP 2100' psi, 5 min. 1980.



GL: 5787

KB: 5797

8 5/8" 24# J55 Surface csg  
@ 505' KB with 280 sxs.

Surface hole size : 12 1/4"

Tubing @ 139 Jts. of 2 7/8"  
6.5# J-55 @ 4310' KB

Hole size: 7 7/8" bit

Cement top @ 505' KB  
5 1/2" 15.5 J55 csg @ 6531'  
KB cmt'd with 630 sxs

Casing Packer @ 4310' KB

**Perfs:**

H02	6428 to 6432'
E01	5826 to 5832'
D7.2	5582 to 5610'
D3.4	5324 to 5354'
D3.3	5311 to 5314'
C6.1	5001 to 5006'
C5.2	4902 to 4906'
B10	4559 to 4563'
B8	4486 to 4496'
B6.3	4441 to 4445'
B6.2	4343 to 4347'

PBTD: 6470' KB

TD: 6570' KB

(Not to Scale)

Petroglyph Operating Co., Inc.

Ute Tribal #33-08D3  
(1848' FNL & 762' FEL)

SE NE Section 33 - 4S - 3W

Antelope Creek Field

Duchesne Co. Utah

API #43-013-31956 ; LEASE #14-20-H62-4736

**Ute Tribal #33-10D3-Wellbore Diagram  
After Conversion**

Well History:

10/31/97 Spud Well  
12/16/97 First Production

12/5/97 H02 Perfs, 6400 to 6403', 4 spf.  
H01 Perfs, 6372 to 6378', 4 spf.  
Broke down with acid and treated water.  
Fraced with 9,400 gal. x-linked gel water and 50,900 lbs. total sand.  
ISIP 3278 psi. 15 min 2226 psi.

**THE FOLLOWING ZONES WILL  
BE COMPLETED AT A LATER DATE**

D7.21 Perfs, 5604 to 5611', 4 spf.  
Broke down with acid and treated water.  
Fraced with 420 bbl. x-linked gel water and 68,000 lbs. total sand.

D7.2 Perfs, 5538 to 5550', 4 spf.  
Broke down with acid and treated water.  
Fraced with 560 bbl. x-linked gel water and 102,000 lbs. total sand.

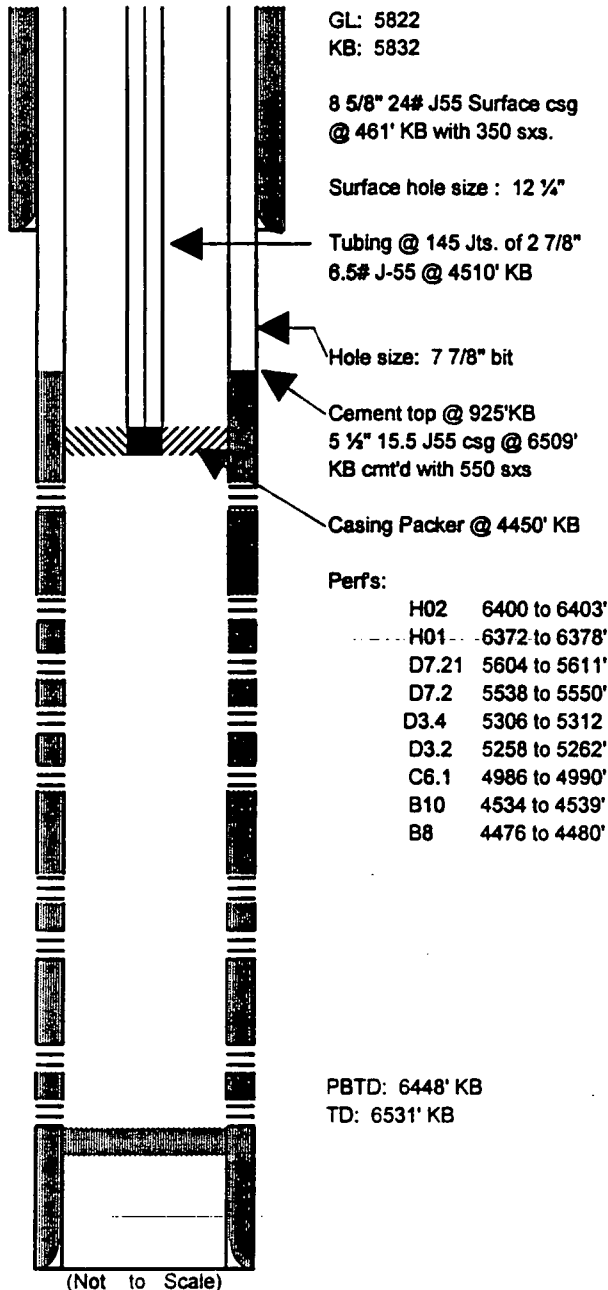
D3.4 Perfs, 5306 to 5312', 4 spf.  
Broke down with acid and treated water.  
Fraced with 280 bbl. x-linked gel water and 56,000 lbs. total sand.

D3.2 Perfs, 5258 to 5262', 4 spf.  
Broke down with acid and treated water.  
Fraced with 191 bbl. x-linked gel water and 28,000 lbs. total sand.

C6.1 Perfs, 4986 to 4990  
Broke down with acid and treated water.  
Fraced with 191 bbl. x-linked gel water and 28,000 lbs. total sand.

B10 Perfs, 4534 to 4539', 4 spf.  
Broke down with acid and treated water.  
Fraced with 191 bbl. x-linked gel water and 28,000 lbs. total sand.

B8 Perfs, 4476 to 4480', 4 spf.  
Broke down with acid and treated water.  
Fraced with 130 bbl. x-linked gel water and 13,000 lbs. total sand.



Petroglyph Operating Co., Inc.
Ute Tribal #33-10D3 (1979' FSL & 1980' FEL) NW SE Section 33 - 4S - 3W Antelope Creek Field Duchesne Co. Utah API #43-013-31935 ; LEASE #14-20-H62-4736

Ute Tribal #33-14D3-Wellbore Diagram  
After Conversion

Well History:

10/13/97 Spud Well

12/14/97 First Production

11/5/97 H2 Perf's, 6355 to 6358', 4 spf. also,  
H1 Perf's, 6313 to 6317', 4 spf.  
Broke down with acid and treated water.  
Fraced with 360 bbls. x-linked gel water  
and 41,800 lbs. total sand. Screened out.

11/12/97 D7.2 Perf's, 5514 to 5526', 4 spf.  
Broke down with acid and treated water.  
Fraced with 441 bbls. x-linked gel water &  
gal. x-linked gel water and 87,000 lbs.  
total sand. ISIP 3666 psi, 5min. 3200.

11/18/97 D7.11 Perf's, 5465 to 5473', 4 spf. also,  
D7.1 Perf's, 5436 to 5440', 4 spf.  
Broke down with acid and treated water.  
Fraced with 347 bbls. x-linked gel water &  
55,800lbs. total sand. Screened out.

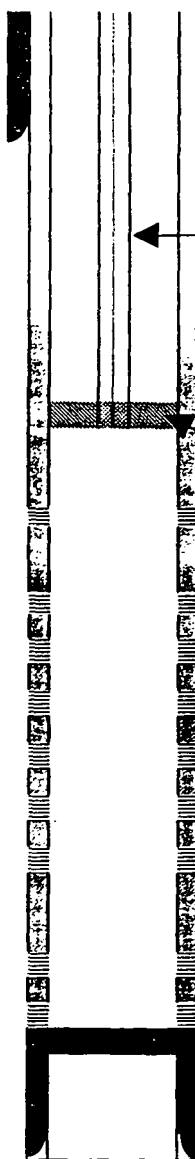
11/24/97 D3.3 Perf's, 5252 to 5255', 4 spf  
Broke down with acid and treated water.  
Fraced with 191 bbls. x-linked gel water &  
gal. x-linked gel water and 16,000 lbs.  
total sand. Screened out.

12/2/97 C5.2 Perf's, 4953 to 4957', 4 spf.  
Broke down with acid and treated water.  
Fraced with 184 bbls. x-linked gel water  
and 10,000 lbs. total sand. Screened out.

12/3/97 C4.2 Perf's, 4812 to 4816', 4 spf.  
Broke down with acid and treated water.  
Fraced with 9288 gal. x-linked gel water  
and 35,000 lbs. total sand.

12/4/97 B10 Perf's, 4530 to 4536', 4 spf.  
Broke down with acid and treated water.  
Fraced with 314 bbls. x-linked gel water  
and 47,000 lbs. total sand. Screened out.

12/4/97 B6.3 Perf's, 4343 to 4349', 4 spf. also,  
B6.2 Perf's, 4330 to 4336', 4 spf.  
Broke down with acid and treated water.  
Fraced with 14,444 gal. x-linked gel water  
and 78,400 lbs. total sand.



GL: 5889

KB: 5899

8 5/8" 24# Surface CSG @  
443' KB cmt'd w/400 sxs

Surface Hole size 12 1/4"

Tubing: 45 jts of 2 7/8" @ 4510' KB

Hole Size 7 7/8" bit

Cement top @ 580' KB  
5 1/2" 15.5# J-55 CSG @ 6453'  
cmt'd w/585 sxs.

Casing Packer @ 4300'

Perf's:

B6.2	4330 to 4336'
B6.3	4343 to 4349'
B10	4530 to 4536'
C4.2	4812 to 4816'
C5.2	4953 to 4957'
D3.3	5252 to 5255'
D7.1	5436 to 5440'
D7.11	5465 to 5473'
D7.2	5514 to 5526'
H1	6313 to 6317'
H2	6355 to 6358'

PBTD @ 6365'  
TD @ 6494' KB

(Not to Scale)

Petroglyph Operating Co., Inc.

Ute Tribal #33-14D3

(660' FSL & 1780' FWL)

SE SW Section 33 - 4S - 3W

Antelope Creek Field

Duchesne Co. Utah

API #43-013-31936 ; LEASE #14-20-H62-4736

**Ute Tribal #33-16D3-Wellbore Diagram  
After Conversion:**

**Well History:**

11/15/97 Spud Well  
12/23/97 First Production

12/5/97 H02 Perfs, 6418 to 6422', 4 spf.  
Broke down with acid and treated water.  
Fraced with 5,767 gal. x-linked gel water  
and 29,000 lbs. total sand. ISIP 2715 psi.

12/5/97 D7.2 Perfs, 5660 to 5664', 4 spf.  
Broke down with acid and treated water.  
Fraced with 5,969 gal. x-linked gel water  
and 27,400 lbs. total sand. ISIP 2829 psi.

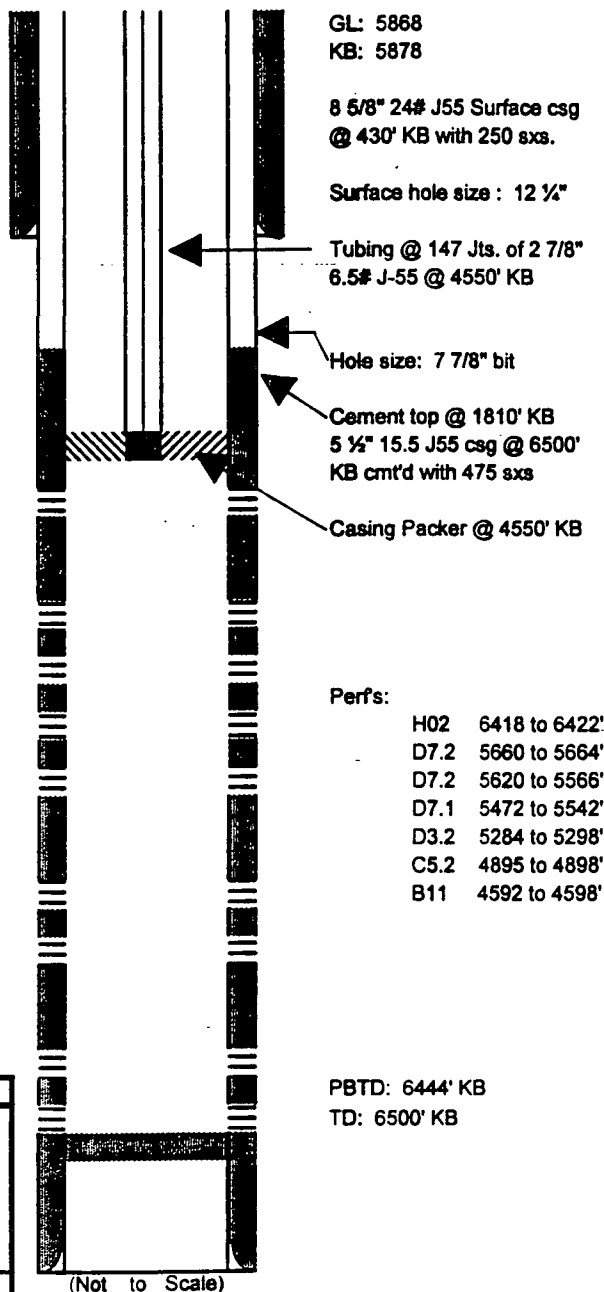
12/10/97 D7.2 Perfs, 5620 to 5566', 4 spf.  
Broke down with acid and treated water.  
Fraced with 915 bbls. x-linked gel water  
and 176,600 lbs. total sand. ISIP 2357 psi.

12/15/97 D7.1 Perfs, 5472 to 5542', 4 spf.  
Broke down with acid and treated water.  
Fraced with 648 bbls. x-linked gel water  
and 117,000 lbs. total sand. ISIP 2113 psi.

12/19/97 D3.2 Perfs, 5284 to 5298', 4 spf.  
Broke down with acid and treated water.  
Fraced with 794 bbls. x-linked gel water  
and 157,000 lbs. total sand. ISIP 2370 psi.

12/20/97 C5.2 Perfs, 4895 to 4898', 4 spf.  
Broke down with acid and treated water.  
Fraced with 266 bbls. x-linked gel water  
and 28,300 lbs. total sand. ISIP 2678 psi.

12/20/97 B11 Perfs, 4592 to 4598', 4 spf.  
Broke down with acid and treated water.  
Fraced with 298 bbls. x-linked gel water  
and 47,000 lbs. total sand. ISIP 2550 psi.



Petroglyph Operating Co., Inc.  Ute Tribal #33-16D3 (662' FSL & 737' FEL) SE SE Section 33 - 4S - 3W Antelope Creek Field Duchesne Co. Utah API #43-013-31938 ; LEASE #14-20-H62-4736
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## **APPENDIX C**

### **II. WELL PLUGGING AND ABANDONMENT SCHEMATICS**

**Ute Tribal # 33-08D3-Wellbore Diagram  
Plugged**

**Well History:**

11/23/97 Spud Well  
12/27/97 First Production

12/11/97 H02 Perfs, 6428 to 6432', 4 spf.  
Broke down with acid and treated water.  
Fraced with 300 bbls. x-linked gel water and  
28,300 lbs. total sand. ISIP 2684 psi.

12/11/97 E01 Perfs, 5826 to 5832', 4 spf.  
Broke down with acid and treated water.  
Fraced with 318 bbls. x-linked gel water and  
42,200 lbs. total sand. ISIP 2200 psi.

12/12/97 D7.2 Perfs, 5582 to 5610', 4 spf.  
Broke down with acid and treated water.  
Fraced with 810 bbl. x-linked gel water and  
170,700 lbs. total sand. ISIP 2817 psi, 5 min. 2813.

12/15/97 D3.4 Perfs, 5324 to 5354', 4 spf. also,  
D3.3 Perfs, 5311 to 5314', 4 spf.  
Broke down with acid and treated water.  
Fraced with 771 bbls. x-linked gel water and  
151,800 lbs. total sand. ISIP 2113 psi.

12/15/97 C6.1 Perfs, 501 to 5006', 4 spf.  
Broke down with acid and treated water.  
Fraced with 323 bbls. x-linked gel water and  
50,800 lbs. total sand. ISIP 1983' psi, 5 min 1888'.

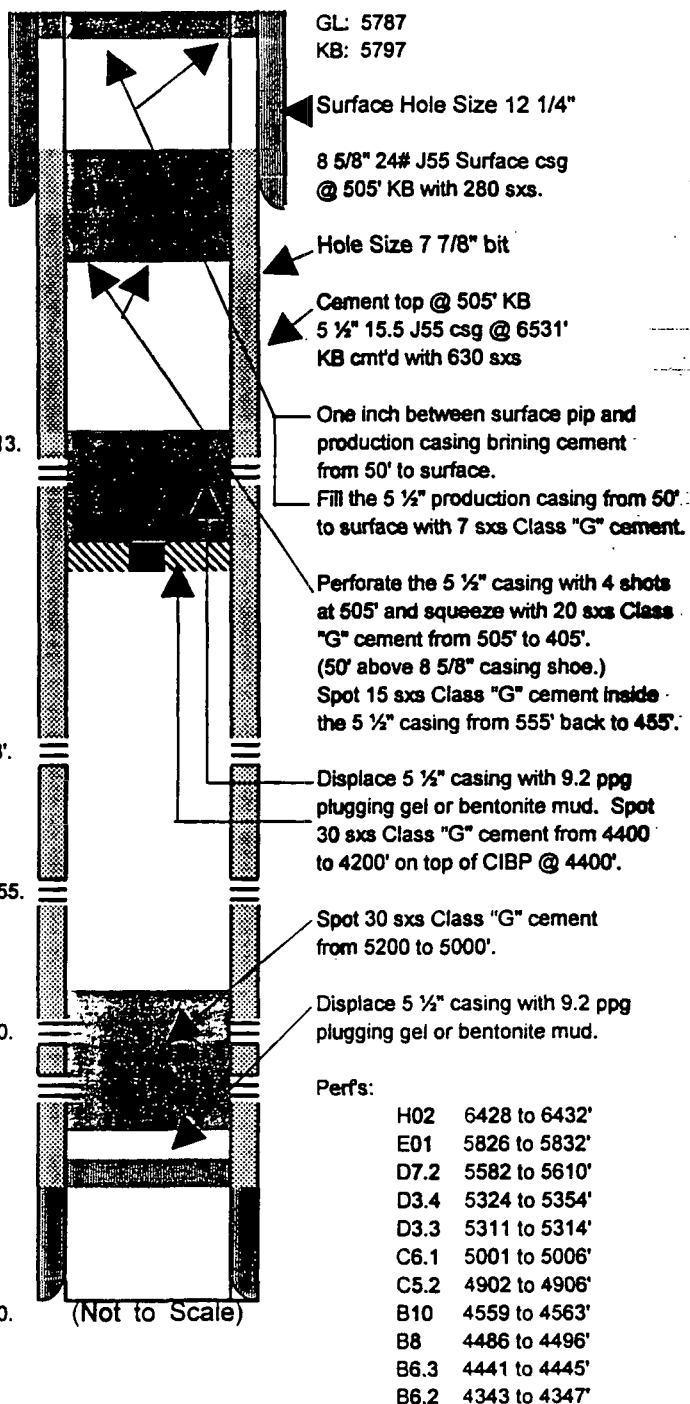
12/18/97 C5.2 Perfs, 4902 to 4906', 4 spf.  
Broke down with acid and treated water.  
Fraced with 245 bbls. x-linked gel water and  
310,000 lbs. total sand. ISIP 2450' psi, 5 min. 1955.

12/18/97 B10 Perfs, 4559 to 4563', 4 spf.  
Broke down with acid and treated water.  
Fraced with 297 bbls. x-linked gel water and  
43,000 lbs. total sand. ISIP 2659' psi, 5 min. 2560.

B8 Perfs, 4486 to 4496', 4 spf.  
Broke down with acid and treated water.  
Fraced with 3,000 gal. x-linked gel water and  
13,000 lbs. total sand.

12/18/97 B6.3 Perfs, 4441 to 4445', 4 spf.  
Broke down with acid and treated water.  
Fraced with 244 bbls. x-linked gel water and  
27,000 lbs. total sand. ISIP 3418' psi, 5 min. 3100.

12/18/97 B6.2 Perfs, 4343 to 4347', 4 spf.  
Broke down with acid and treated water.  
Fraced with 217 bbls. x-linked gel water and  
27,600 lbs. total sand. ISIP 2100' psi, 5 min. 1980.



(Not to Scale)

PBTD: 6470' KB  
TD: 6570' KB

<b>Petroglyph Operating Co., Inc.</b>  <b>Ute Tribal #33-08D3</b> <b>(1848' FNL &amp; 762' FEL)</b> <b>SE NE Section 33 - 4S - 3W</b> <b>Antelope Creek Field</b> <b>Duchesne Co. Utah</b> <b>API #43-013-31956 : LEASE #14-20-H62-4736</b>
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**Ute Tribal # 33-10D3-Wellbore Diagram  
Plugged**

**Well History:**

10/31/97 Spud Well  
12/16/97 First Production

12/5/97 H02 Perfs, 6400 to 6403', 4 spf.  
H01 Perfs, 6372 to 6378', 4 spf.  
Broke down with acid and treated water.  
Fraced with 9,400 gal. x-linked gel  
water and 50,900 lbs. total sand.  
ISIP 3278 psi. 15 min 2226 psi.

THE FOLLOWING ZONES WILL  
BE COMPLETED AT A LATER DATE

D7.21 Perfs, 5604 to 5611', 4 spf.  
Broke down with acid and treated water.  
Fraced with 420 bbl. x-linked gel water and  
68,000 lbs. total sand.

D7.2 Perfs, 5538 to 5550', 4 spf.  
Broke down with acid and treated water.  
Fraced with 560 bbl. x-linked gel water and  
102,000 lbs. total sand.

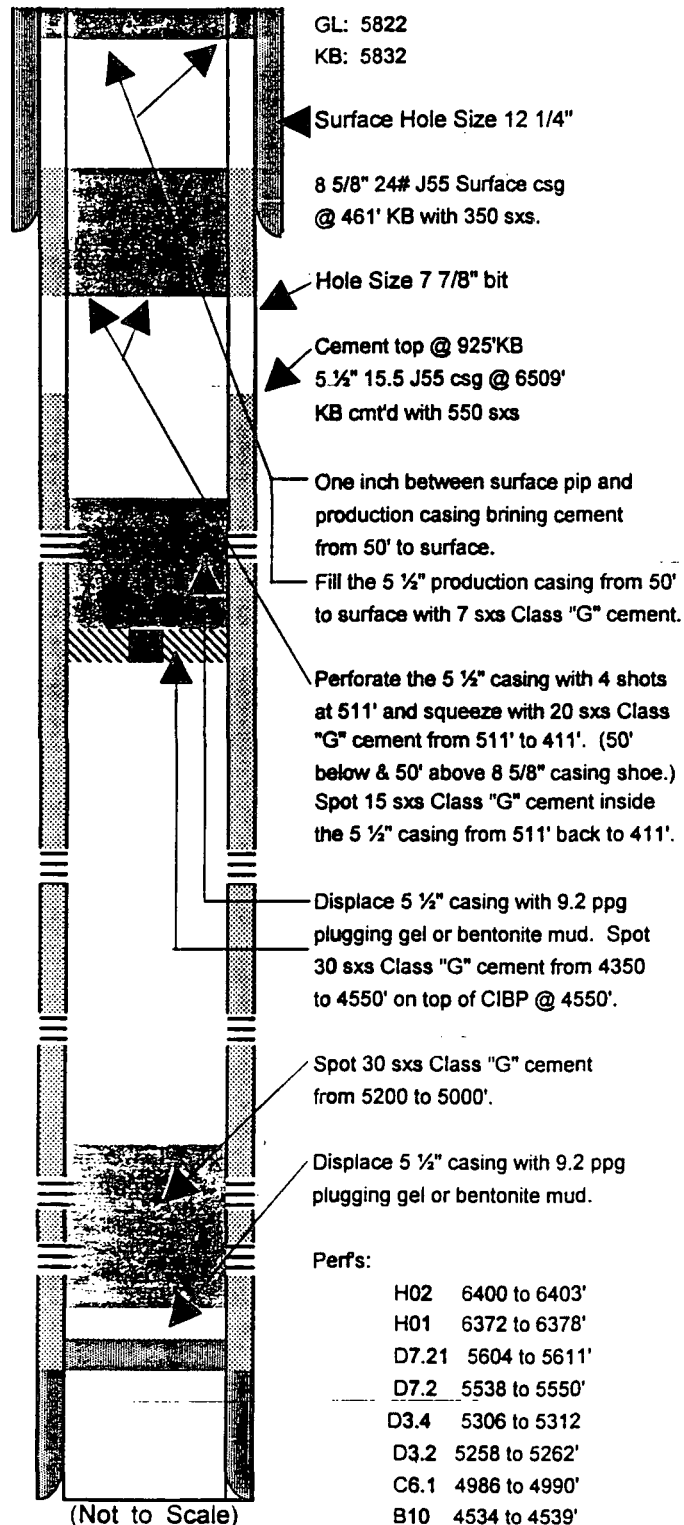
D3.4 Perfs, 5306 to 5312', 4 spf.  
Broke down with acid and treated water.  
Fraced with 280 bbl. x-linked gel water and  
56,000 lbs. total sand.

D3.2 Perfs, 5258 to 5262', 4 spf.  
Broke down with acid and treated water.  
Fraced with 191 bbl. x-linked gel water and  
28,000 lbs. total sand.

C6.1 Perfs, 4986 to 4990  
Broke down with acid and treated water.  
Fraced with 191 bbl. x-linked gel water and  
28,000 lbs. total sand.

B10 Perfs, 4534 to 4539', 4 spf.  
Broke down with acid and treated water.  
Fraced with 191 bbl. x-linked gel water and  
28,000 lbs. total sand.

B8 Perfs, 4476 to 4480', 4 spf.  
Broke down with acid and treated water.  
Fraced with 130 bbl. x-linked gel water and  
13,000 lbs. total sand.



PBTD: 6448' KB  
TD: 6531' KB

Petroglyph Operating Co., Inc.

Ute Tribal #33-10D3  
(1979' FSL & 1980' FEL)  
NW SE Section 33 - 4S - 3W  
Antelope Creek Field  
Duchesne Co. Utah

API #43-013-31935 ; LEASE #14-20-H62-4736

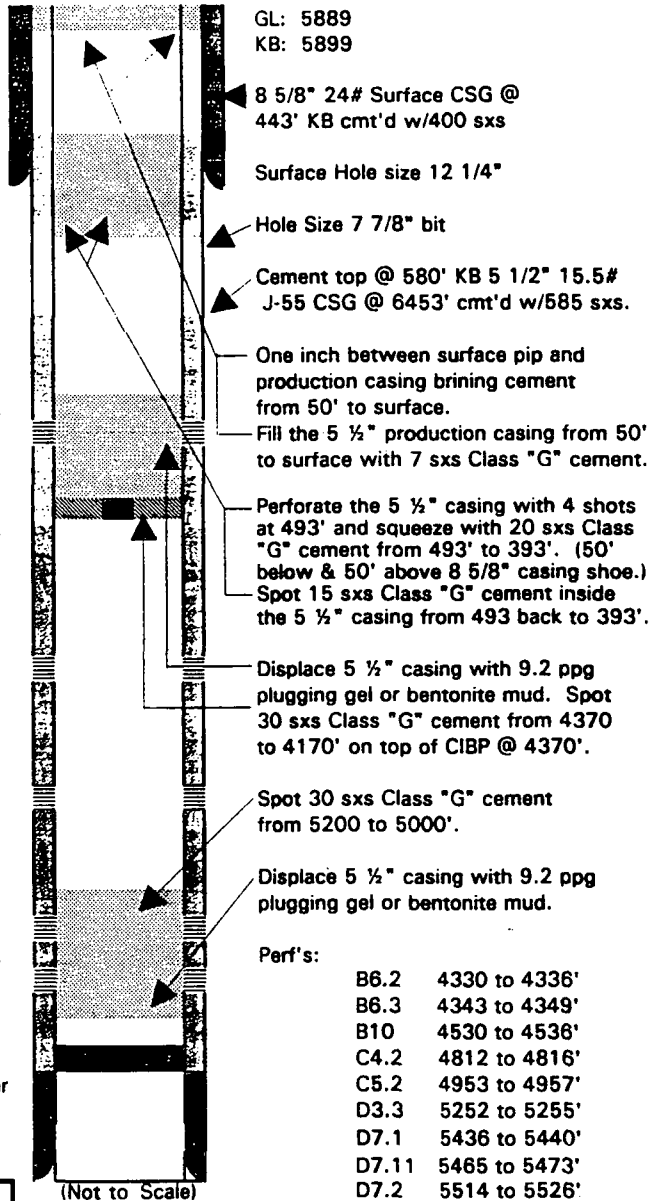
Ute Tribal #33-14D3-Wellbore Diagram  
Plug and Abandonment

Well History:

10/13/97 Spud Well

12/14/97 First Production

- 11/5/97 H2 Perf's, 6355 to 6358', 4 spf. also, H1 Perf's, 6313 to 6317', 4 spf. Broke down with acid and treated water. Fraced with 360 bbls. x-linked gel water and 41,800 lbs. total sand. Screened out.
- 11/12/97 D7.2 Perf's, 5514 to 5526', 4 spf. Broke down with acid and treated water. Fraced with 441 bbls. x-linked gel water & gal. x-linked gel water and 87,000 lbs. total sand. ISIP 3666 psi, 5min. 3200.
- 11/18/97 D7.11 Perf's, 5465 to 5473', 4 spf. also, D7.1 Perf's, 5436 to 5440', 4 spf. Broke down with acid and treated water. Fraced with 347 bbls. x-linked gel water & 55,800lbs. total sand. Screened out.
- 11/24/97 D3.3 Perf's, 5252 to 5255', 4 spf Broke down with acid and treated water. Fraced with 191 bbls. x-linked gel water & gal. x-linked gel water and 16,000 lbs. total sand. Screened out.
- 12/2/97 C5.2 Perf's, 4953 to 4957', 4 spf. Broke down with acid and treated water. Fraced with 184 bbls. x-linked gel water and 10,000 lbs. total sand. Screened out.
- 12/3/97 C4.2 Perf's, 4812 to 4816', 4 spf. Broke down with acid and treated water. Fraced with 9288 gal. x-linked gel water and 35,000 lbs. total sand.
- 12/4/97 B10 Perf's, 4530 to 4536', 4 spf. Broke down with acid and treated water. Fraced with 314 bbls. x-linked gel water and 47,000 lbs. total sand. Screened out.
- 12/4/97 B6.3 Perf's, 4343 to 4349', 4 spf. also, B6.2 Perf's, 4330 to 4336', 4 spf. Broke down with acid and treated water. Fraced with 14,444 gal. x-linked gel water and 78,400 lbs. total sand.



Petroglyph Operating Co., Inc.

Ute Tribal #33-14D3

(660' FSL & 1780' FWL)

SE SW Section 33 - 4S - 3W

Antelope Creek Field

Duchesne Co. Utah

API #43-013-31936 ; LEASE #14-20-H62-4736

PBTD @ 6365'

TD @ 6494' KB